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DEVELOPMENT OF NEW BARLEY VARIETIES IN THE LITHUANIAN SSR

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Barley has an important position among the grain crops grown in Lithuania. It is widely used in agriculture as a livestock feed and in the food industry for producing groats, malt, etc. Barley occupies a considerable portion of the total area devoted to all grain crops in the republic.

Its importance as a grain crop demands that agricultural scientists and kolkhoz workers pay serious attention to improving existing varieties and to developing new varieties suited to mechanized harvesting. Work of this type is carried on at the Lithuanian State Selection Station.

The writer of this article has devoted 25 years to developing new barley varieties which are better adapted to local conditions, produce higher yields, and possess better qualities than local types. During this period, it has been possible to obtain more than 15 new varieties, of which two, Auksinyay-P and Dzhyugyay, are now widely grown in the republic.

Because of their excellent qualities, these two varieties are receiving ever wider distribution in kolkhozes and sovkhozes of Lithuania. In 1952, according to data of the Crop Variety Administration, they were sown on almost 70 percent of the entire area devoted to barley in the republic.

The writer used several methods to develop new barley varieties. The most extensively employed method was selection, which always gives positive results, but does not permit attaining them quickly; by using this method alone, the plant breeder in most cases is not in a position to obtain anything basically new.

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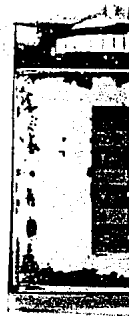

The main method for developing new barley varieties was crossbreeding. The advantage of this method is the capability of producing entirely new forms with new characteristics and qualities.

In developing new varieties, very close attention was paid to parent stocks; 73 varieties of two-row awned, 61 varieties of four-row awned, 48 varieties of naked (hull-less) awned, and several varieties of awnless barley were used. In addition, hundreds of local varieties from more than 20 localities of the republic were brought to the selection station and used in developing new varieties.

Two varieties, Auksinyay-P and Dzhyugyay, proved to be the highest yielding under conditions prevailing in the republic. In this respect, they outstripped even such outstanding varieties as Maya and Viner, which are widely grown in various parts of the USSR. On the grounds of the selection station, the 1951 average barley yield was 30.4 quintals per hectare from an area of 33 hectares, and the 1952 average yield was 37.7 quintals per hectare from an area of 49 hectares, including 50 quintals per hectare from a 6-hectare tract sown to the Auksinyay-P variety.

Besides being high yielding, the Auksinyay-P variety is characterized by high resistance to lodging and for that reason is suited to mechanized harvesting. This two-row spring barley has a light green spike and awns of medium length. The weight of 1,000 grains is as great as 51 grams.

The Dzhyugyay variety was developed by the individual selection method from local barleys brought to the station from Simnasskiy Rayon. An outstanding biological characteristic of this variety is its low sensitivity to soil acidity. For example, on the Plunge Variety-Testing Tract, where the soil is acid, yield of the Dzyugyay variety exceeded that of the Auksinyay-P variety by 73.1 percent. According to data of the Samalishkskaya Experimental Station, where soil acidity ranges between 4.5 and 6 pH, the Dzhyugyay variety also produced a high yield of grain there; over a 10-year period, the average yield of this variety was 26 quintals per hectare, while that of other varieties grown under identical conditions was only 15 quintals per hectare.

Sowing of these two varieties is being rapidly expanded in kolkhozes and sovkhozes of the republic. Thus, the Auksinyay-P variety was sown on 1,875 hectares in 1949, 2,685 hectares in 1950, 12,525 hectares in 1951, and more than 25,000 hectares in 1952. The area sown to the Dzhyugyay variety is also growing rapidly.

There are 12 other prospectively good varieties which are not undergoing testing. Among these, the most noteworthy is the Litovskiy No 799 variety, which produces a higher yield than other varieties grown in the republic.

In working for new varieties, serious attention was paid to obtaining varieties which require a comparatively short growing period, are disease resistant, and are suited for combine harvesting. Important tasks were to develop varieties which have soft, smooth awns or which are completely awnless. These tasks were important because at present only rough-awned varieties are sown; since each awn is covered with a great number of tiny barbs, the straw from these varieties is not ideal as livestock fodder. The problem of developing smooth-awned varieties has been basically solved; smooth-awned hybrids have been obtained which are almost equal in yield to the Auksinyay variety and considerably superior to the Dippes Ganna variety, which was introduced in Lithuania earlier. Testing of two awnless varieties is in progress at present on the fields of the station.

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Thus, the Lithuanian State Selection Station is making its contribution to solving the task of increasing the yield of all agricultural crops as posed by the 19th Party Congress.

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